AMENDMENT TO THE CLAIMS

1.(Original)   A data multiplexing apparatus for multiplexing a plurality of packet streams and outputting a multiplexed packet stream, comprising:

a data multiplexing unit operable to generate a first multiplexed packet stream by multiplexing at least one first packet stream and null packets so that the multiplexed packet stream is outputted at a predetermined transmission rate, said null packets being inserted into said first multiplexed packet stream; and

a packet replacement unit operable to generate the multiplexed packet stream by replacing the inserted null packets with packets that constitute a second packet stream.

2.(Original)   The data multiplexing apparatus according to Claim 1, further comprising a packet stream storage unit having an area for storing a second packet stream,

wherein the packet replacement unit includes:

an address obtainment subunit operable to obtain an address indicating where a packet is stored in the packet stream storage unit, said packet being a starting packet in each predetermined block of packets on the second packet stream stored in the packet stream storage unit;

a null packet detection subunit operable to detect the null packets in the first multiplexed packet stream generated by the data multiplexing unit; and

a packet replacement subunit operable to generate the multiplexed packet stream by replacing the null packets detected by the null packet detection subunit with packets starting from the packet indicated by the address obtained by the address obtainment subunit.

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3.(Original)   The data multiplexing apparatus according to Claim 2,

wherein the packet replacement unit further includes a packet number obtainment subunit operable to obtain the number of packets included in said each predetermined block on the second packet stream stored in the packet stream storage unit, and

the packet replacement subunit generates the multiplexed packet stream by replacing the null packets with said packets in sequence starting from the packet indicated by the address, the number of said packets being equivalent to the number obtained by the packet number obtainment subunit.

4.(Original)   The data multiplexing apparatus according to Claim 3,

wherein the number of packets obtained by the packet number obtainment subunit is equal to or less than the number of packets included in said each block on the second packet stream stored in the packet stream storage unit.

5.(Original)   The data multiplexing apparatus according to Claim 2,

wherein the packet replacement subunit starts replacing the null packets when the address obtainment subunit obtains the address.

6.(Original)   The data multiplexing apparatus according to Claim 1, further comprising:

a packet stream storage unit having an area for storing packet streams one by one;

a multiplexing order generation unit operable to generate information indicating an order of packets to be multiplexed into the first multiplexed packet stream in every predetermined period of time;

a multiplexing order storage unit operable to hold the information indicating the order generated by the multiplexing order generation unit;

a flag generation unit operable to generate a flag indicating a state how the packets are stored in the multiplexing order storage unit; and

a multiplexing total number control unit operable to determine the total number of packets to be multiplexed in said every predetermined period of time, based on the flag generated by the flag generation unit.

7.(Original)   The data multiplexing apparatus according to Claim 6,
wherein the flag generated by the flag generation unit has a first flag and a second flag, said first flag indicating that the number of stored packets is equal to or less than a predetermined value, said second flag indicating that the number of stored packets is equal to or more than a predetermined value.

8.(Original)   The data multiplexing apparatus according to Claim 1,
wherein the second packet stream is made up of data having no time-base information.

9.(Original)   The data multiplexing apparatus according to Claim 8,
wherein the second packet stream is a packet stream of private data.

10.(Original)   The data multiplexing apparatus according to Claim 1,
wherein the first packet stream is a packet stream including at least one of a video signal and an audio signal.

11.(Currently Amended)   The data multiplexing apparatus according to ~~any one of Claim 2 and Claim 6~~ claim 2,
wherein the packet stream storage unit is a synchronous dynamic RAM.

12.(Original)   A transmission apparatus for multiplexing a plurality of packet streams and transmitting a multiplexed packet stream, comprising:

a data multiplexing unit operable to generate a first multiplexed packet stream by multiplexing at least one first packet stream and null packets so that the multiplexed packet stream is outputted at a predetermined transmission rate, said null packets being inserted into said first multiplexed packet stream;

a packet replacement unit operable to generate the multiplexed packet stream by replacing the inserted null packets with packets that constitute a second packet stream, and

a transmission unit operable to transmit the multiplexed packet stream generated by the packet replacement unit.

13.(Original)   A data multiplexing method for multiplexing a plurality of packet streams and outputting a multiplexed packet stream, comprising:

a data multiplexing step of generating a first multiplexed packet stream by multiplexing at least one first packet stream and null packets so that the multiplexed packet stream is outputted at a predetermined transmission rate, said null packets being inserted into said first multiplexed packet stream; and

a packet replacement step of generating the multiplexed packet stream by replacing the inserted null packets with packets that constitute a second packet stream.

14.(Original)   A program for multiplexing a plurality of packet streams and outputting a multiplexed packet stream, the program causing a computer to execute:

a data multiplexing step of generating a first multiplexed packet stream by multiplexing at least one first packet stream and null packets so that the

multiplexed packet stream is outputted at a predetermined transmission rate, said null packets being inserted into said first multiplexed packet stream; and

a packet replacement step of generating the multiplexed packet stream by replacing the inserted null packets with packets that constitute a second packet stream.

15.(New)   The data multiplexing apparatus according to claim 6,

wherein the packet stream storage unit is a synchronous dynamic RAM.